READING TIME SERIES GRAPHS

SOLUTIONS

TASK 1 Water in a dam

1 The dot for the graph is between 60% and 70% and so good estimate is 65%.

2 **a** Yes, the dam was full (100%) in May. **b** No, the dam never reaches 0%.

3 The dam was at its lowest capacity in February (the lowest point on the graph).

4 The dam was at 25% capacity in January and then continued to become lower for two months. The dam level rose quickly between March and May when it was full. It stayed nearly full for two months and then slowly declined for the rest of the year. There was probably a lot of rain from May to July and then not enough rain in the later months to compensate for water loss or usage.

TASK 2 Two sprouts

1 Sprout B started growing first. For at least one day, sprout A still had a height of zero (no appreciable growth).

2 At day 4, sprout A was, on average, about 2.8 cm high while sprout B was about 4 cm. The difference in height was about 1.2 cm.

3 The lines cross between 9 am day 4 and 9 am day 5 so at some time on day 4 they were the same height.

4 Sprout A is probably a better commercial variety because it grows more rapidly, once growth starts, and reaches a greater height which is probably an advantage for sales. It appears to reach maturity on day 7, a full two days before sprout B.

TASK 3 The population of Greece

1 The jagged line indicates that the vertical scale does not start at 0.

2 10.7 represents a population of 10.7 million people or 10 700 000.

3 Your estimates may differ slightly from these.

a Population ≈ 11.3 million or 11 300 000	**b** The dot is halfway between 10.9 and 11.0 Population ≈ 10.95 million or 10 950 000	**c** About a quarter of the way between 11.0 and 11.1 Population ≈ 11.025 million or 11 025 000

4 Population in 2002 ≈ 10.95 million

Population in 2006 ≈ 11.11million

Difference in population = 0.16 million or 160 000

5 June is halfway through the year. Assuming that the population changes gradually throughout the year, at a constant rate, the population in June 2000 would be about halfway between Jan 2000 and Jan 2001.

Population Jan 2000 ≈ 10.79

Population Jan 2001 ≈ 10.92

$$\text{Population June 2001} \approx \frac{10.79 + 10.92}{2}$$

$$= 10.855 \text{ or about } 10\,855\,000$$

This is probably too accurate for the given graph so round it to 10 850 000.

6 The population seems to be increasing at a fairly constant rate. By extending the line on the graph, the population will possibly increase to about 11.34 or 11.35 million in 2012.

A survey of relevant sites put the population in January 2012 at 11.31 million (source Eurostat) and so the rate of population growth slowed down in 2011.